PRICE $2.00

HH-2

HEATH COMPANY
BENTON HARBOR, MICHIGAN

HEATHKIT®
ASSEMBLY MANUAL

HEATHKIT®

SOLDERING IRON
MODEL GH-17A

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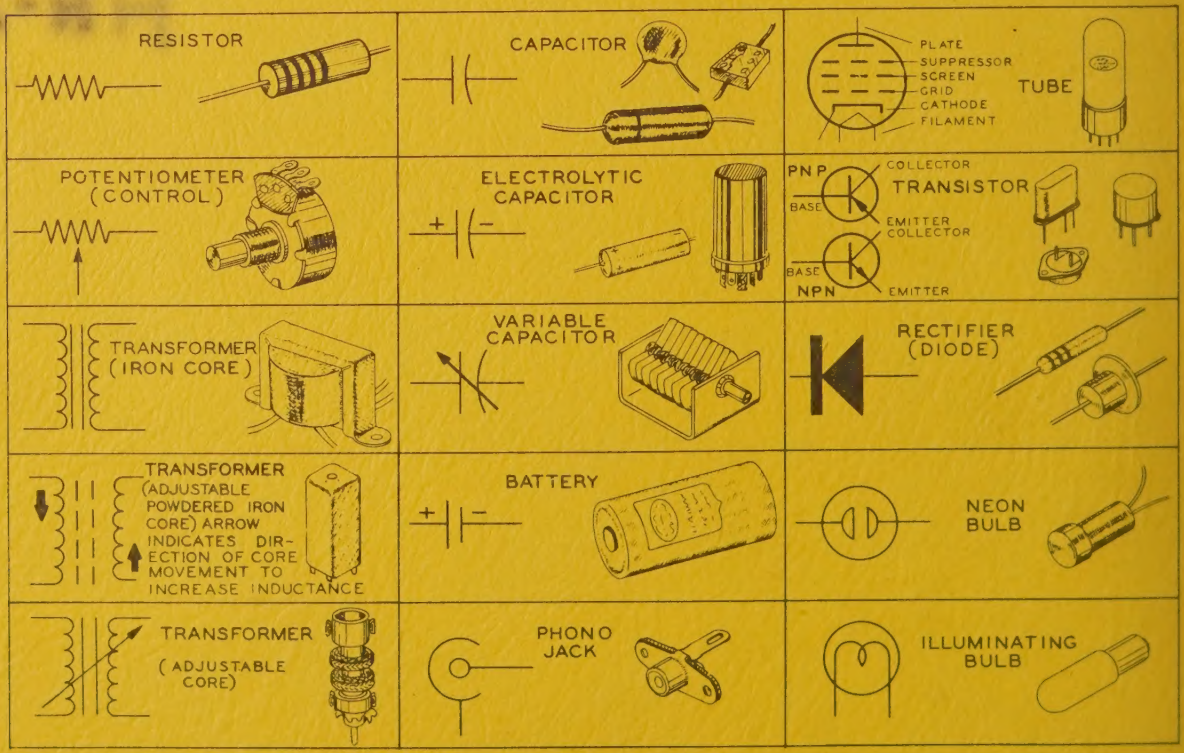
595-1094-01
7-11-69

TYPICAL COMPONENT TYPES

This chart is a guide to commonly used types of electronic components. The symbols and related illustrations should prove helpful in identifying most parts and reading the schematic diagrams.



Continued on Back Cover

Assembly and Operation of the

HEATHKIT

SOLDERING IRON

MODEL GH-17A

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HEATH COMPANY
BENTON HARBOR, MICHIGAN 49022

INTRODUCTION

Your new Heathkit Soldering Iron is designed specifically for soldering electronic circuits. There are three different switch-selected heat ranges to meet all of your normal soldering requirements. The handle will remain cool and will not become uncomfortable to hold, even when the soldering iron is used continuously.

The location of the heating element in the tip of the iron puts the heat right where you need it. The step-down power transformer permits the use of a low-voltage heating element to eliminate shock hazards, and practically removes any chance of power-line short circuits.

The three-wire line cord is an added safety feature. When the line cord is connected to a grounded outlet, the soldering iron chassis is at ground potential providing an additional safety factor.

The slim, beveled soldering tip can be used in the hard-to-get-to places that are too "tight" for many other soldering irons and guns. The six-foot cord gives you plenty of freedom to move the iron about. Because the soldering iron tip is iron-clad, it requires very little maintenance. (Maintenance information is given later in the manual.)

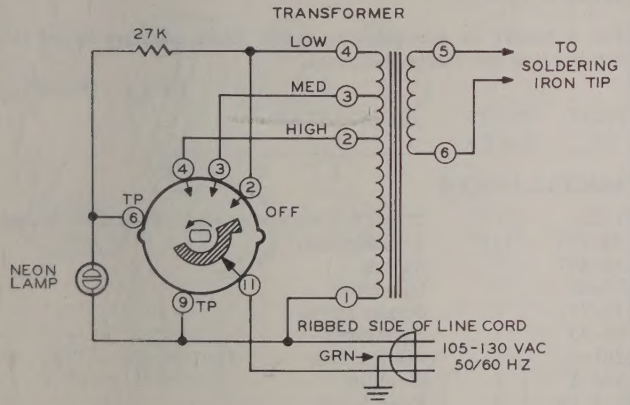
A "lock-in" holder retains the iron when it is not in use. This feature will hold the hot iron in place if it is bumped accidentally, but will also allow the iron to be inserted and removed easily. For soldering that requires both hands to hold the work, provision is made to hold the iron so the soldering tip is accessible, leaving both hands free.

The circuit of the Soldering Iron consists mainly of the step-down transformer and Heat Range switch as shown on the Schematic Diagram. The neon pilot lamp is connected across the transformer primary winding to indicate when the Soldering Iron is turned on.

Each position of the Heat Range switch, except the OFF position, selects a different primary tap on the transformer. The tap used determines the step-down voltage ratio of the transformer; the HIGH position provides a lower ratio than the MED position, etc. The lower the step-down ratio, the higher the secondary voltage, and thus the higher the temperature of the soldering iron tip.

After you check the Parts List and assemble your Soldering Iron, be sure to read the Operation section in the back of the manual.

Refer to the "Kit Builders Guide" for complete information on unpacking, parts identification, tools, wiring, soldering, and step-by-step assembly procedures.



SCHEMATIC OF THE HEATHKIT® SOLDERING IRON MODEL GH-17A

1. SWITCH SHOWN IN FULL CLOCKWISE POSITION AS VIEWED FROM THE REAR.
2. K = 1000 OHMS.
3. TP = TIEPOINT.
4. ⏚ = CHASSIS GROUND.

PARTS LIST

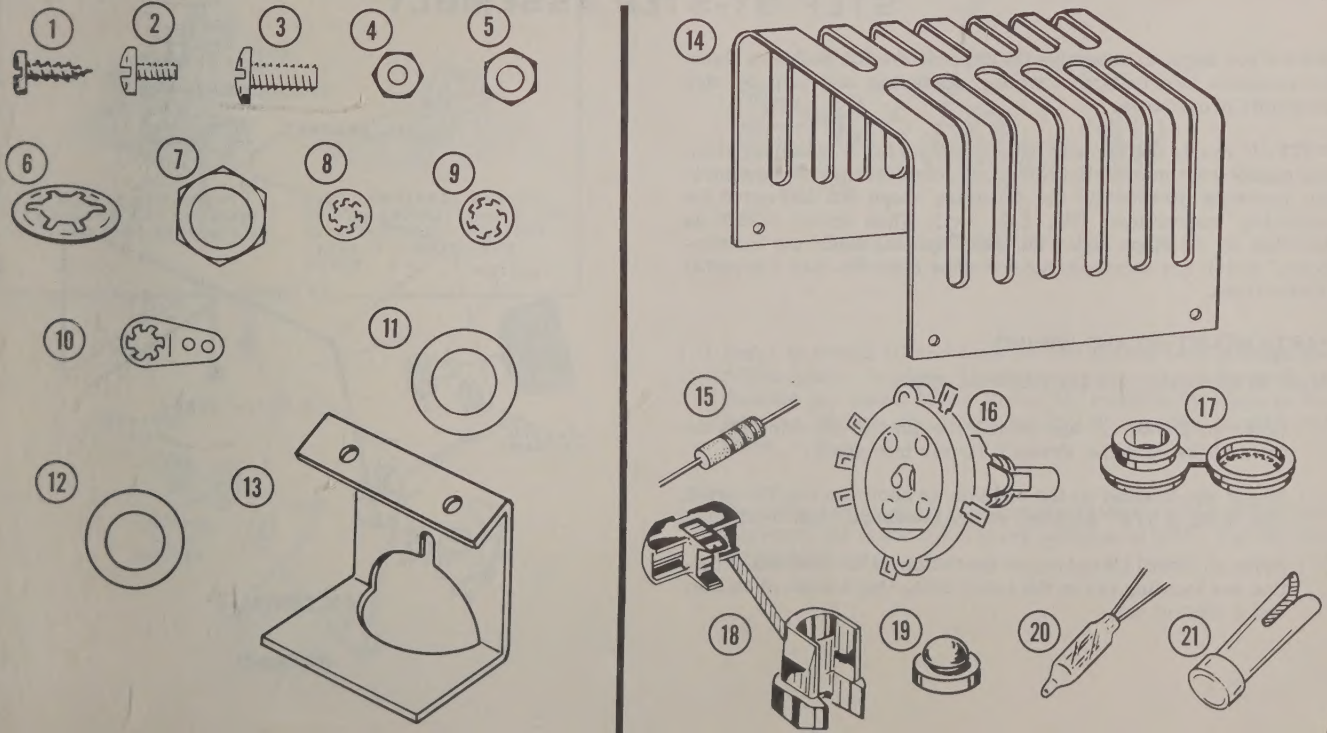
To order replacement parts, refer to the Replacement Parts Price List and use the Parts Order Form furnished with this kit.

The numbers in parentheses in the Parts List are keyed to the numbers on the Parts Pictorial.

PART No.	PARTS Per Kit	DESCRIPTION
HARDWARE		
(1)250-8	8	#6 sheet metal screw
(2)250-56	2	6-32 x 1/4" screw
(3)250-137	2	8-32 x 3/8" screw
(4)252-3	2	6-32 nut
(5)252-4	2	8-32 nut
(6)252-73	1	5/16" speednut
(7)252-7	1	Control nut
(8)254-1	2	#6 lockwasher
(9)254-2	3	#8 lockwasher
(10)259-2	1	#8 solder lug
(11)253-10	1	Control washer
(12)253-86	1	5/16" nickel-plated washer
METAL PARTS		
90-360	1	Base
90-447	1	Chassis
(13)204-782	1	Bracket
(14)206-347	1	Shield

PART No.	PARTS Per Kit	DESCRIPTION
MISCELLANEOUS		
(15)1-23	1	27 kΩ 1/2 watt resistor (red-violet-orange)
54-187	1	Transformer
(16)63-467	1	Switch
(17)73-43	1	Grommet
(18)75-71	1	Strain relief
89-23	1	Line cord
(19)261-4	4	Rubber foot
346-1	1	Sleeving
(20)412-15	1	Neon lamp
(21)413-10	1	Plastic lens
462-24	1	Knob
490-69	1	Black cord, handle, and formed wire support
490-70	1	Soldering iron tip
391-34	1	Blue and white identification label
597-260	1	Parts Order Form
597-308	1	Kit Builders Guide
	1	Manual (see front cover for part number)
		Solder

PARTS PICTORIAL



STEP-BY-STEP ASSEMBLY

Before you begin to assemble the kit, read the Kit Builders Guide for complete information on wiring, soldering, and step-by-step assembly procedures.

NOTE: If you do not already have some sort of a soldering iron, and cannot conveniently borrow one to complete this kit, assemble the parts as directed in the following steps but disregard the soldering instructions (NS, S-2, etc.). Then solder ONLY as directed in the steps under the title "Special Soldering Instructions," which are located at the end of the Step-By-Step Assembly instructions.

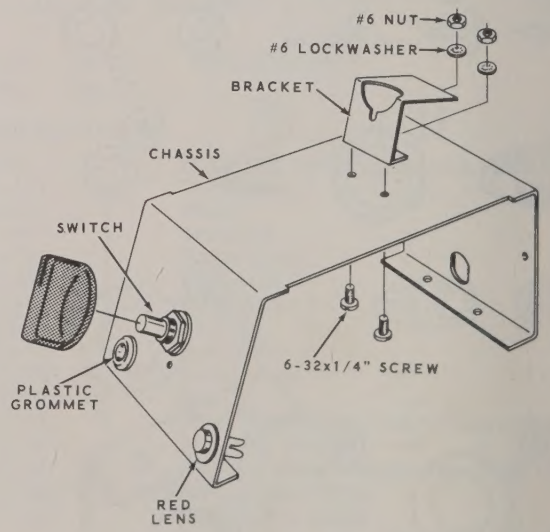
PARTS MOUNTING AND WIRING

Refer to Pictorial 1 for the following steps.

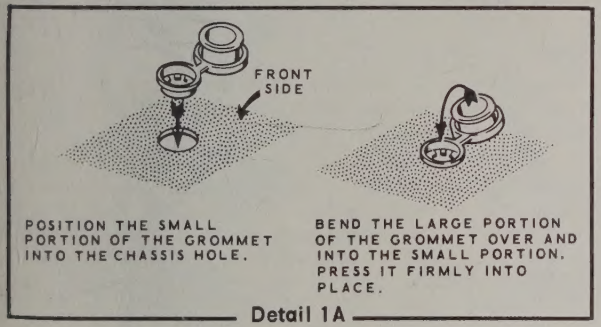
( ) Refer to Detail 1A and mount the plastic grommet on the front of the chassis. Press it firmly into place.

( ) Mount the bracket on the chassis as shown in the Pictorial. Use 6-32 x 1/4" screws, #6 lockwashers, and 6-32 nuts.

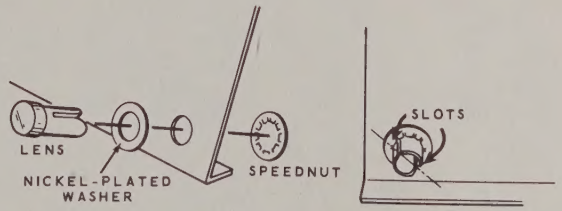
( ) Refer to Detail 1B and mount the switch on the chassis. Position the locating tab in the index hole. Use a control washer and a control nut.



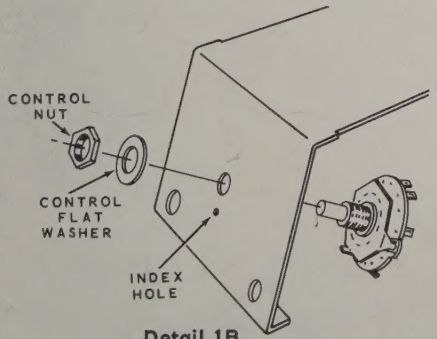
PICTORIAL 1


FRONT SIDE
POSITION THE SMALL PORTION OF THE GROMMET INTO THE CHASSIS HOLE.
BEND THE LARGE PORTION OF THE GROMMET OVER AND INTO THE SMALL PORTION. PRESS IT FIRMLY INTO PLACE.

Detail 1A



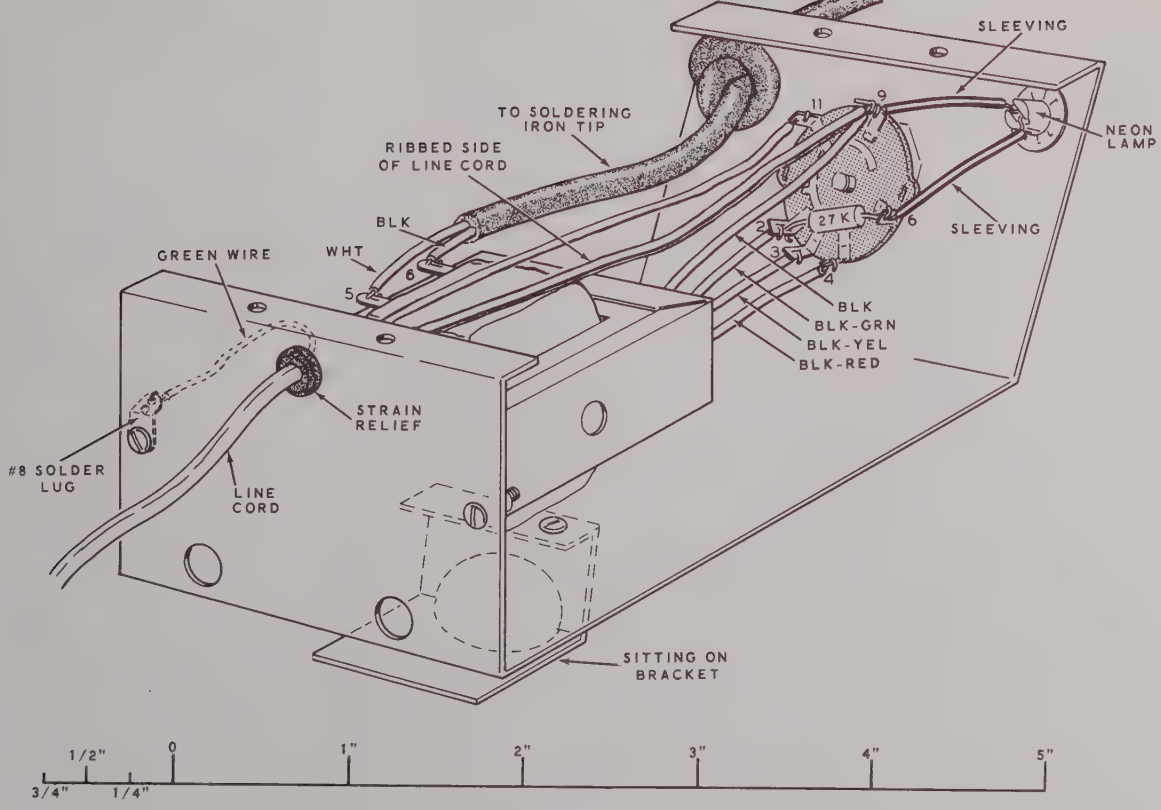
Detail 1C



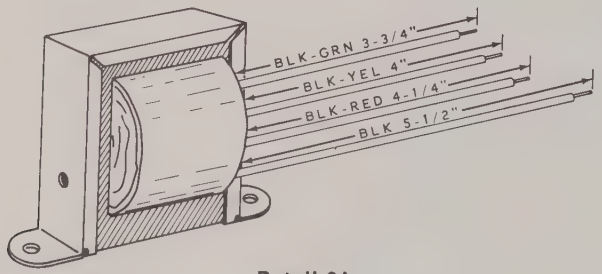
Detail 1B

( ) Refer to Detail 1C and pass the red plastic lens through the nickel-plated washer. Mount these parts on the front of the chassis as shown in the Pictorial. Position the slots in the lens as shown, and press the 5/16" speednut firmly into place.

( ) Turn the switch shaft fully counterclockwise and install the knob with its white index mark pointing to OFF. Tighten the setscrew firmly.


SLEEVING
TO SOLDERING IRON TIP
RIBBED SIDE OF LINE CORD
NEON LAMP
BLK
WHT
GREEN WIRE
27K
SLEEVING
BLK
BLK-GRN
BLK-YEL
BLK-RED
STRAIN RELIEF
#8 SOLDER LUG
LINE CORD
SITTING ON BRACKET
1/2"
0
1"
2"
3"
4"
5"
3/4"
1/4"

PICTORIAL 2



Detail 2A

Refer to Pictorial 2 for the following steps.

( ) Connect the 27 kΩ (red-violet-orange) resistor between lugs 2 (NS) and 6 (NS) of the switch.

( ) Cut off two 7/8" lengths of sleeving and place one on each lead of the neon lamp.

( ) Push the neon lamp into the red lens as far as possible. Then bend one lead through a slot in the lens and connect it to lug 9 of the switch (NS). Similarly, connect the other lead to lug 6 of the switch (S-2).

Refer to Detail 2A and cut the transformer leads to the following lengths. Measure each lead from the point where it emerges from the transformer winding:

( ) Black-green 3-3/4"

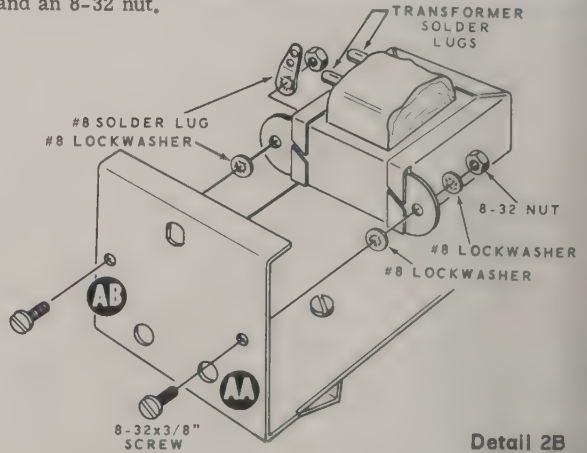
( ) Black-yellow 4"

( ) Black-red 4-1/4"

( ) Black 5-1/2"

( ) Remove 1/4" of insulation from the end of each lead and twist the bared wires in each end uniformly together to avoid any stray strands.

( ) Refer to Detail 2B and mount the transformer on the back of the chassis. Position the two transformer solder lugs as shown. At mounting hole AA, use an 8-32 x 3/8" screw, two #8 lockwashers, and an 8-32 nut. At mounting hole AB use an 8-32 x 3/8" screw, a #8 lockwasher, a #8 solder lug and an 8-32 nut.



Detail 2B

onnect the transformer leads to the switch lugs as follows:

) Black-red to lug 4 (S-1).

) Black-yellow to lug 3 (S-1).

) Black-green to lug 2 (S-2).

) Black to lug 9 (NS).

) Locate the line cord and separate the three wires for about 5". Be careful not to damage the insulation.

) Cut the green wire to 2-1/4".

) If not already done, remove at least 1/4" of insulation from the end of each wire. Twist the ends of the bared strands of each wire to prevent fraying.

) Insert 6" of the line cord through the hole in the back of the chassis.

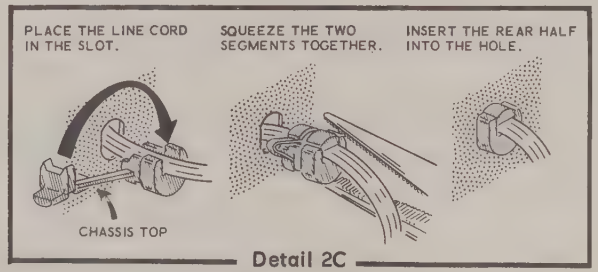
) Connect the ribbed side of the line cord to lug 9 of the switch (S-3).

) Connect the green wire to the #8 solder lug (S-1).

) Connect the remaining wire of the line cord to lug 11 of the switch (S-1).

OTE: If you have difficulty getting the strain relief and line cord to the hole, squeeze the two parts of the strain relief together ith pliers and then insert the strain relief into the hole.

) Refer to Detail 2C and install the strain relief on the line cord in the back of the chassis.



Detail 2C

( ) Locate the black cord and handle assembly.

( ) A black wire and a white wire protrude from one end of the 2-conductor black cord. Cut off the solder lugs from the ends of these wires.

NOTE: The formed-wire soldering iron support packed with the black cord (and handle) may be used under "Special Soldering Instructions".

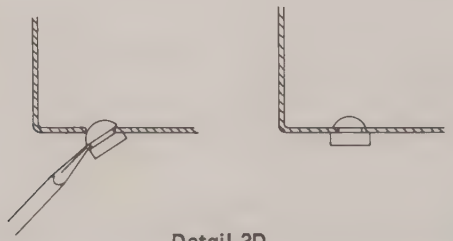
( ) Cut the white wire to a length of 2" and the black wire to a length of 1-1/4". Remove 1/4" of insulation from the end of each.

( ) Pass enough of the black 2-conductor cord through the plastic grommet so that you can tie a knot in the cord and still have 4-1/4" total length beyond the knot.

( ) Connect the white wire to lug 5 of the transformer (S-1), and the black wire to lug 6 (S-1).

( ) Adjust the knot in the black cord so that there is no strain on the transformer connections when the cord is pulled from outside the chassis.

( ) Refer to Detail 2D and install one rubber foot at each corner of the base in the holes provided. Press and twist the rounded portion of the foot through the hole with a small screwdriver until the foot is seated as shown.



Detail 2D

This completes the parts mounting and wiring of your Heathkit Soldering Iron. If all of the connections have been soldered, carefully examine them to be sure of good solder joints, and to see that no short circuits exist between wires or connections. Shake the cabinet to dislodge any bits of solder or wire ends that may have dropped into the wiring during assembly.

NOTE: If you have soldered the connections in the foregoing steps proceed to the Initial Test section. If you have not soldered the connections, refer to the following Special Soldering Instructions.

SPECIAL SOLDERING INSTRUCTIONS

( ) Be sure all wires are tightly bent or crimped around their connecting points. If any wires are loose, crimp them tightly to their solder lugs with long-nose pliers.

CAUTION: Do not, under any circumstances, solder any connections in the following steps while the line cord is plugged into an electrical outlet. This could cause you to receive a severe electrical shock.

( ) Screw the soldering iron tip firmly into the black handle.

( ) Turn the switch to HIGH.

( ) Plug the line cord into a 105 to 130 volts AC electrical outlet. The pilot lamp should light. If the iron is heating properly, after about 30 seconds it will "sizzle" when moisture is applied to it.

( ) If the iron tip does not heat, DISCONNECT THE LINE CORD and recrimp the wires to provide a tight mechanical connection which will permit current to flow and cause the iron to heat. Then reconnect the line cord plug to the electrical outlet and proceed with the following steps.

) Tin the tip of the iron as soon as the iron is hot enough to melt the solder as described in the Maintenance section.

) When the iron is heating satisfactorily, and after the tip has been tinned, let it heat for another minute. THEN DISCONNECT THE LINE CORD FROM THE ELECTRIC OUTLET.

) Quickly apply a very small amount of solder to the tip of the hot iron (to aid in transferring the heat) and solder as many as possible of the prepared connections before the iron cools off.

( ) Put the soldering iron down on the formed-wire soldering iron support, and again insert the line cord plug into the electric outlet.

( ) When the iron has reheated, again REMOVE THE LINE CORD FROM THE ELECTRIC OUTLET and solder more connections.

( ) Repeat the steps above until all of the connections have been soldered satisfactorily.

Now proceed to the Initial Test section.

INITIAL TEST

) If not done previously, screw the soldering iron tip firmly into the black handle.

) Turn the switch to OFF.

) Position the iron in the bracket as shown in Figure 1 in the Operation section.

) Plug the line cord into a 105-130 volts AC electrical outlet.

NOTE: If the Soldering Iron does not perform as expected in the ollowing steps, turn the switch to OFF, remove the line cord rom the electric outlet, and refer to the In Case of Difficulty ection.

( ) Turn the switch to LOW. The pilot lamp should light and the iron tip should start to heat.

( ) As soon as the tip is hot enough to melt solder, tin the tip as described in the Maintenance section.

( ) Turn the switch to MED and HIGH. The pilot lamp should glow progressively brighter for each position.

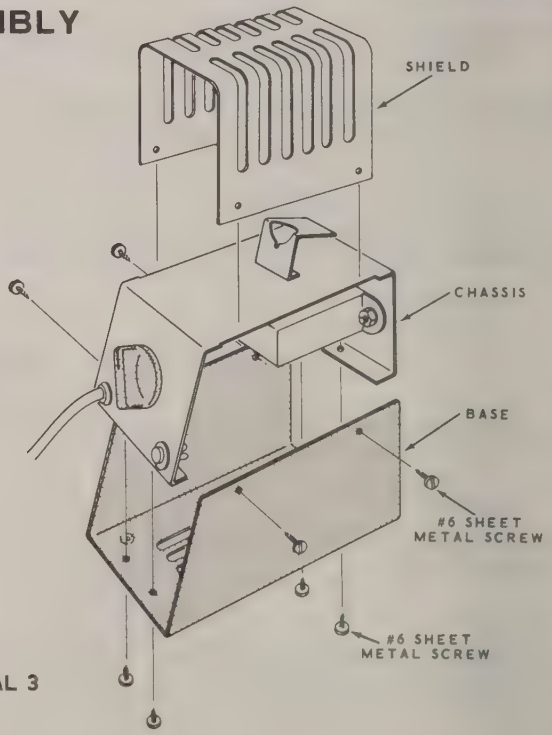
( ) Unplug the line cord and proceed to Final Assembly.

FINAL ASSEMBLY

( ) Refer to Pictorial 3 and assemble the chassis, base, and shield. Insert four #6 sheet metal screws through the base into the lips of the chassis. Then insert two #6 sheet metal screws through each side of the base into the shield.

( ) Carefully peel away the backing paper from the blue and white identification label. Then press the label onto the rear of the chassis or bottom of the base. Be sure to refer to the numbers on this label in any communications you have with the Heath Company about this kit.

This completes the assembly of your Heathkit Soldering Iron.



PICTORIAL 3

OPERATION

GENERAL

( ) Place the soldering iron in its bracket as shown in Figure 1.

( ) Plug the line cord into a 105-130 volts AC electrical outlet.

( ) Turn the switch to LOW. The pilot light will come on and the iron tip will start to heat.

NOTE: The LOW switch position keeps the soldering iron tip warm so it will reach higher temperatures quickly when the switch is turned to MED or HIGH. Use the switch position which provides the tip temperature you want for the job at hand. Return the switch to LOW when you have a few minutes between actual soldering operations. This lower heat will extend the life of the tip.

Figure 1 shows the position of the Soldering Iron when it is not in use. With the iron in this position, the hot tip rests under the shield, preventing accidental contact.

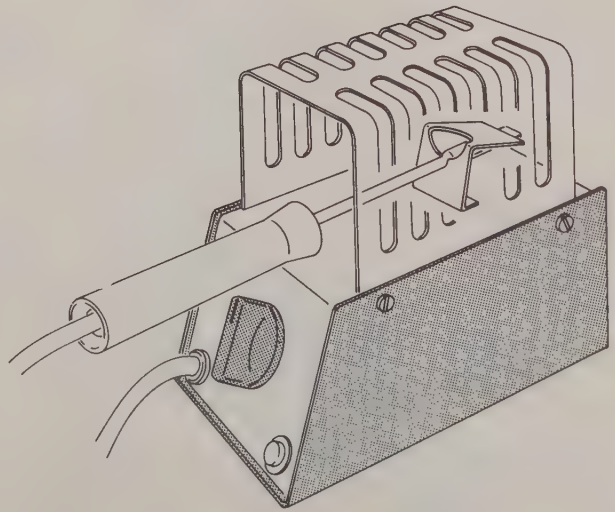


Figure 1

Figure 2 shows the handle of the soldering iron clipped into the bracket under the shield. With the iron in this position you have both hands free for handling the work to be soldered.

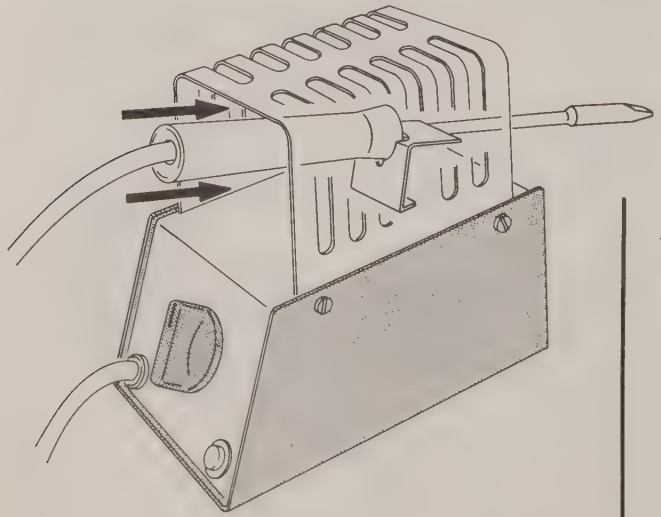


Figure 2

MAINTENANCE

The soldering iron tip is made of copper, coated with a thin laye of iron. Proper care of the soldering tip is essential. Keep th following points in mind whenever you use the Soldering Iron

1. "Tin" the tip of the iron with solder each time it is turne on. Apply solder to the tip just as soon as it is hot enough t melt the solder. See Figure 3.

2. When the iron is in use, wipe the tip with a cloth from tim to time; then re-tin the tip. See Figure 4.

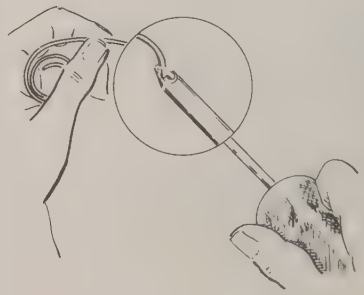


Figure 3

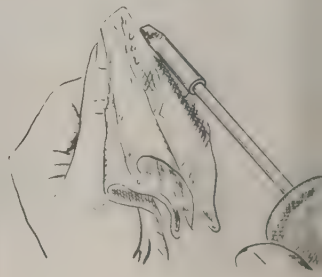


Figure 4

Cleaning the tip is rarely necessary because it is iron-clad. When necessary, clean the hot tip, using one of the following methods. After cleaning, tin the tip with solder. DO NOT CLEAN THE TIP TOO VIGOROUSLY; the thin iron coating of the tip could be damaged. NEVER FILE THE TIP.

a. Scrape the tip lightly with a knife blade held at a right angle to the tip. See Figure 5.

b. Smooth the tip with a fine grade of emery cloth. See Figure 6.

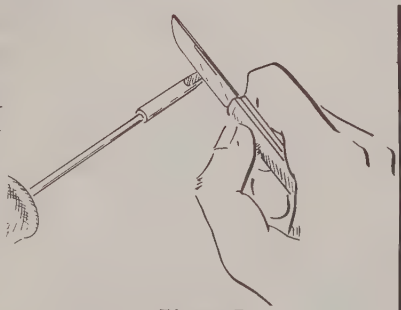


Figure 5

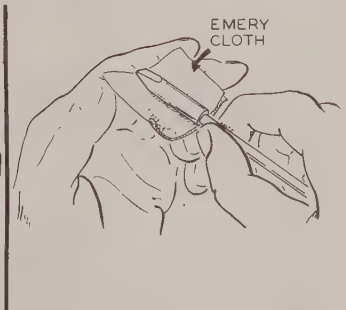


Figure 6

IN CASE OF DIFFICULTY

efer to the Kit Builders Guide for Service and Warranty infor-ation.

Recheck the wiring. Trace each lead in colored pencil on the Pictorial as it is checked. Have a friend check your work. Someone who is not familiar with the unit may notice something you have overlooked.

About 90% of the kits that are returned for repair do not function properly due to poor connections and soldering. Therefore, many troubles can be eliminated by reheating all connections to make sure that they are soldered as described in the Soldering section of the Kit Builders Guide.

3. Make sure the soldering iron tip is screwed snugly into its handle.

4. Check for bits of solder, wire ends or other foreign matter which may be lodged in the wiring.

5. If, after careful checks, the trouble is still not located and a voltmeter is available, check voltage readings. For 120 volts line input, the voltages at the Soldering Iron cord terminals of the transformer should be as listed below. These voltages are given only for reference purposes and may vary slightly:

LOW	MED	HIGH
4.5 VAC	5.5 VAC	6.5 VAC

Factory Repair Service

You can return your completed kit to the Heath Company Service Department to have it repaired for a minimum service fee. (Kits that have been modified will not be accepted for repair). If you wish, you can deliver your kit to a nearby Heath Authorized Service Center. These centers are listed in your Heathkit catalog.

To be eligible for replacement parts under the terms of the warranty, equipment returned for factory repair service, or delivered to a Heath Authorized Service Center, must be accompanied by the invoice or the sales slip, or a copy of either. If you send the original invoice or sales slip, it will be returned to you.

If it is not convenient to deliver your kit to a Heath Authorized Service Center, please ship it to the factory at Benton Harbor, Michigan and follow the following shipping instructions:

Prepare a letter in duplicate, containing the following information:

- Your name and return address.
- Date of purchase.
- A brief description of the difficulty.
- The invoice or sales slip, or a copy of either.
- Your authorization to ship the repaired unit back to you C.O.D. for the service and shipping charges, plus the cost of parts not covered by the warranty.

Attach the envelope containing one copy of this letter direct to the unit before packaging, so that we do not overlook th important information. Send the second copy of the letter l separate mail to Heath Company, Attention: Service Departmen Benton Harbor, Michigan.

Check the equipment to see that all parts and screws are i place. (Do not include wooden cabinets when shipping receiver tuners, amplifiers, or TV sets, as these are easily damage in shipment). Then, wrap the equipment in heavy paper. Plac the equipment in a strong carton, and put at least THRE INCHES of resilient packing material (shredded paper, excelsio etc.) on all sides, between the equipment and the carton. Sea the carton with gummed paper tape, and tie it with a strong cor Ship it by prepaid express, United Parcel Service, or insure parcel post to:

Heath Company
Service Department
Benton Harbor, Michigan 49022

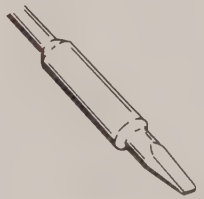
SPECIFICATIONS

ldering Iron Type.	6 volt, 25 watt element (nominal), with 1/4" beveled, iron-clad tip.
eat Ranges.	Three different heat ranges are available.
vitch.	Heat Range switch with OFF, LOW, MED, and HIGH positions.
ransformer.	The transformer has tapped primary windings.
ower Requirements.	105 to 130 volts AC, 50/60 Hz.
ldering Iron Dimensions.	8" long with 6 foot heavy-duty cord.
abinet Dimensions.	5-1/8" high x 3-5/8" wide x 5-1/2" deep.
et Weight.	3 lbs.

The Heath Company reserves the right to discontinue instruments and to change specifications at any time without incurring any obligation to incorporate new features in instruments previously sold.

ACCESSORY TIPS

MODEL GDP-317
1/4" CHISEL TIP



MODEL GDP-337
3/16" CHISEL TIP

MODEL GDP-327
3/16" PYRAMID TIP

Figure 7

Figure 7 illustrates three different soldering iron tips available. Model GDP-317 is identical to the one furnished with your GH-17A Soldering Iron kit. The other two tips are offered for special requirements. All three tips will also fit the older Models GH-17 and GH-52 Soldering Irons. The tips are priced at $3.99 each.

REPLACEMENT PARTS PRICE LIST

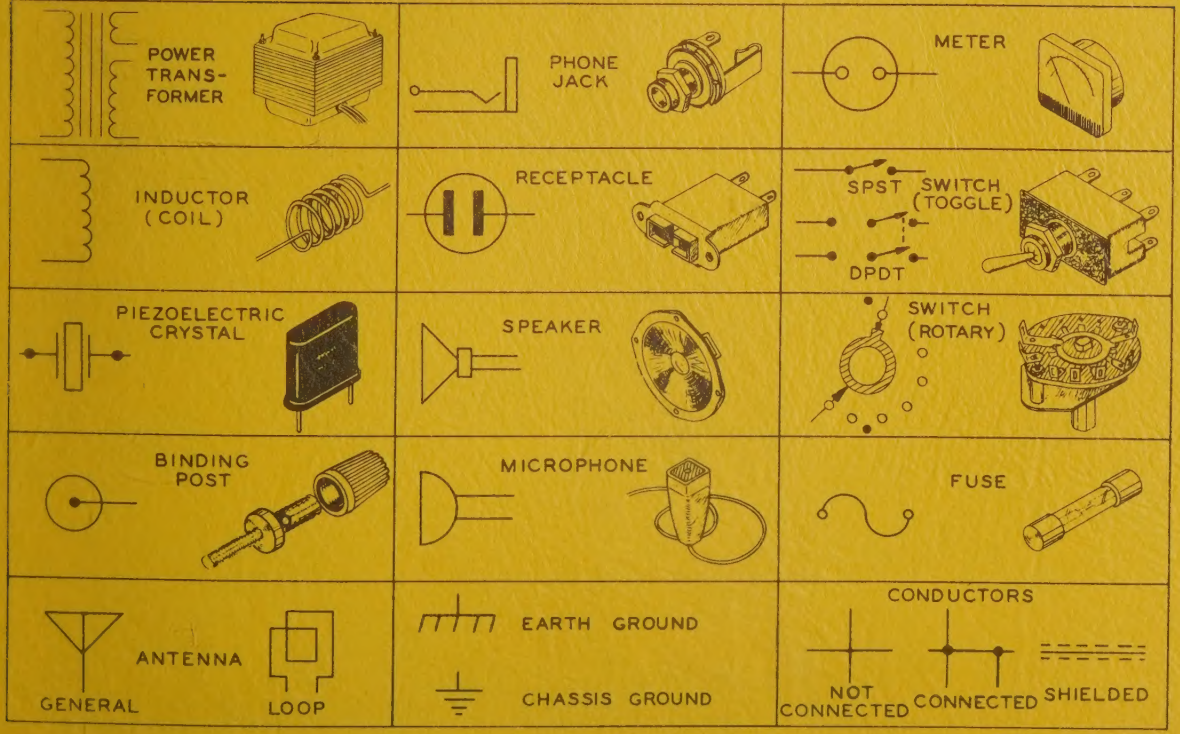
To order parts, use the Parts Order Form furnished with this kit. If Parts Order Form is not available, refer to Replacement Parts in the Kit Builders Guide.

ART No.	PRICE Each	DESCRIPTION
ARDWARE		
50-8	.05	#6 sheet metal screw
50-56	.05	6-32 x 1/4" screw
50-137	.05	8-32 x 3/8" screw
52-3	.05	6-32 nut
52-4	.05	8-32 nut
52-73	.05	5/16" speednut
52-7	.05	Control nut
54-1	.05	#6 lockwasher
54-2	.05	#8 lockwasher
59-2	.05	#8 solder lug
53-10	.05	Control washer
53-86	.05	5/16" nickel-plated washer
ETAL PARTS		
-360	.90	Base
-447	.60	Chassis
4-782	.20	Bracket
6-347	.45	Shield
ISCELLANEOUS		
-23	.10	27 kΩ 1/2 watt resistor
-187	3.95	Transformer

PART No.	PRICE Each	DESCRIPTION
Miscellaneous (cont'd.)		
63-467	.75	Switch
73-43	.10	Grommet
75-71	.10	Strain relief
89-23	.75	Line cord
261-4	.05	Rubber foot
346-1	.05/ft.	Sleeving
412-15	.15	Neon lamp
413-10	.10	Plastic lens
462-24	.20	Knob
490-69	5.00	Black cord and handle
490-70	3.99	Soldering iron tip, 1/4" chisel
331-6	.15	Solder
	2.00	Manual (see front cover for part number)

The above prices apply only on purchases from the Heath Company where shipment is to a U.S.A. destination. Add 10% (minimum 25 cents) to the price when ordering from an authorized Service Center or Heathkit Electronic Center to cover local sales tax, postage and handling. Outside the U.S.A. parts and service are available from your local Heathkit source and will reflect additional transportation, taxes, duties and rates of exchange.

TYPICAL COMPONENT TYPES



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